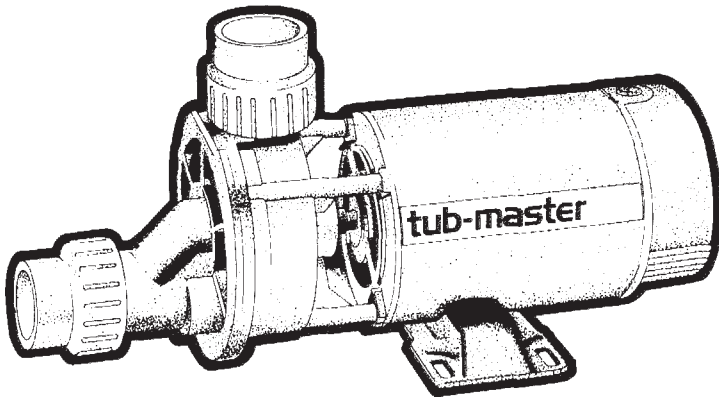




aqua flo

OWNER'S MANUAL

TUB-MASTER® SERIES PUMPS



IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. **READ AND FOLLOW ALL INSTRUCTIONS.**

2. **WARNING** - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

3. **CAUTION** - This pump is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage.

A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity and has a maximum dimension of 18 feet (5.49m) and a maximum wall height of 42 inches (1.07m).

4. Do not install within an outer enclosure or beneath the skirt of a hot tub or spa unless so marked.

5. **SAVE THESE INSTRUCTIONS.**

INSTALLATION & OPERATING INSTRUCTIONS

GENERAL

Your AQUA-FLO pump has been quality built and engineered to give maximum efficiency under normal water pumping conditions. Consult the manufacturer for any other applications.

LOCATION OF PUMP

For best pump performance, locate the system as close to the water source as possible. Provide adequate access around the pump for inspection and maintenance.

MODELS LESS TRAP

This model was designed for below water level (flooded suction) applications. Make sure the pump is installed at a level that will allow the pump casing (volute) to completely fill with water.

Two quick disconnect compression fittings are included with your pump for ease of installation and maintenance. Make sure the fittings are correctly aligned with pump connections to allow the O-ring to make the proper seal. **Hand tighten only. Do not use a wrench to tighten fittings.**

MODELS WITH TRAP

Avoid excessive tightening of pipe or fittings in threaded suction port in trap. For threaded connection, use Quick-Seal Teflon Thread Sealing Compound, Plasto-

Joint Stick or any other sealants formulated specifically for plastics.

STARTING & PRIMING PUMP

Do not run unit dry. Always be certain that the pump casing and/or trap is filled with water before starting the unit. Allow a reasonable amount of time for priming. If pump will not start, or will not prime, see trouble shooting below.

MAINTENANCE

The trap basket should be inspected frequently and kept clean. To avoid damage to the basket, do not strike when cleaning. Inspect trap cover O-ring regularly and replace as necessary.

Keep motor clean. Insure that louvered openings are free from debris and obstructions. Over a period of time, the shaft seals may become damaged or worn and must be replaced.

WINTERIZATION

To prevent damage during freezing conditions, turn off all electrical power. Drain thoroughly and clean out any debris. Protect pump and motor from elements by covering or, if possible, store in a dry, well ventilated room.

WARNING - All electrical wiring of the motor installation must be done by a qualified electrician in accordance with applicable electrical codes. Before working on any motor, be certain that the source of electrical power is off at the main junction box.

BONDING WIRE - Upon installation of the pump, the motor must be bonded with a No. 8 AWG (8.4mm²) solid copper conductor per National Electric Code. The connection should be from the accessible wire connector on the motor to all metal parts of the swimming pool, spa, or hot tub structure and to all electrical equipment, metal conduit and metal piping within 5 feet (1.5m) of the inside walls of a swimming pool, spa or hot tub, when the motor is installed within 5 feet of the inside walls of the swimming pool, spa, or hot tub.

NOTE: For electrical connections, see wiring diagram on motor rating plate.

TROUBLE SHOOTING

MOTOR WILL NOT START:

- 1.) Check Circuit Breakers
- 2.) Check for incorrect or loose wire connections.
- 3.) Make sure the correct power supply is being used.
- 4.) Any on/off switch or pneumatic switch should be in the "on" mode.

MOTOR OVERHEATING AND CYCLING ON AND OFF:

- 1.) Check for incorrect or loose wire connections.
- 2.) Check for low voltage supply (frequently caused by undersized wire).
- 3.) Make sure the motor gets a fresh air supply and the vents are kept unclogged.

MOTOR MAKES HUMMING NOISE BUT WILL NOT START:

- 1.) Make sure motor shaft turns free.
- 2.) Check for jammed impeller or an obstruction in (volute) casing.
- 3.) Check for low voltage and undersized wire.

PUMP WILL NOT PRIME:

- 1.) Make sure pump is installed at the proper level and the plumbing lines have been correctly installed to allow the water to enter pump freely.

- 2.) Open air control valves to release any possible air lock.
- 3.) Make sure all suction and discharge lines are clear and unobstructed and all valves are opened.
- 4.) Check for air leaks in the suction line.

LOW WATER FLOW:

- 1.) Check filter pressure gauge; filter may need cleaning.
- 2.) Check for clogged plumbing lines.
- 3.) Check for worn or damaged impeller.
- 4.) Check for low voltage.

WATER LEAKS

- 1.) Check contamination or damage to shaft rotary seal. Replace if necessary.
- 2.) Check compression fitting (union connectors); make sure they are properly aligned and secured. **Hand tighten only. Do not use tools.**
- 3.) Make sure O-ring is properly seated and not damaged.

NOISES:

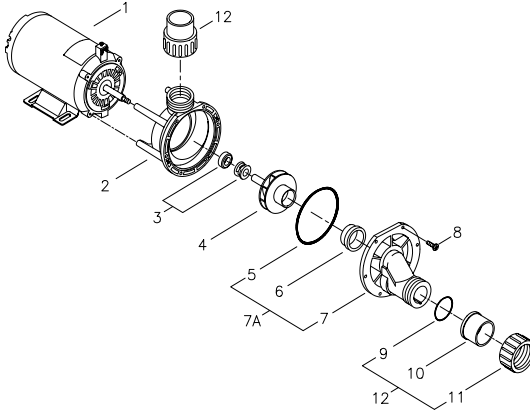
- 1.) Check plumbing vibration-make sure lines are adequately supported.
- 2.) Check for cavitation, due to obstruction in or undersized suction line.

FLO-MASTER® "TMCP" REPLACEMENT PARTS

REF. NO.	PART NO.	DESCRIPTION
1		Motor
2	92770603	Volute, TMCP Series
3	92500150	Seal, Replacement, #200
4	*See Chart Below *	Impeller
5	92200270	O'ring, Volute, #251
6	92830062	Wear Ring
7	56910050	Cover Assembly, Suction

REF. NO.	PART NO.	DESCRIPTION
7A	56910060	Replacement Kit, Cover Complete
8	99730050	Screw, 8/32" x 5/8"
9	92200140	O'ring, #226
10	91431050	Fitting, Tail Piece, 1-1/2"
11	91431000	Fitting, Union Nut, 1-1/2"
12	52201000	Fitting, Compression Complete, 1-1/2"
*	*See Chart Below *	Assembly, Wet End Complete

* Includes Ref. Items 2-8



Sub-Master Replacement Impeller & Wet End Guidelines

To order a replacement part, ALWAYS use the part number molded on the impeller being replaced, if available. If the part number of the part to be replaced is not known, use the chart below as a guideline for replacement of impellers & wet ends.

First 5 digits of Pump Model #	60 Hz (U.S.) ~		50 Hz	
	Impeller #	Impeller#	Impeller#	Wet end
01707xxx, 01807xxx, 03907xxx, 04107xxx	91693551	91041005-00	9169360	91041010-00
01710xxx, 01810xxx, 03910xxx, 04110xxx, 01910xxx, 04010xxx	91693601	91041010-00	9169365	91041015-00
01715xxx, 01815xxx, 03915xxx, 04115xxx	91693651	91041015-00	9169370	
01720xxx, 01820xxx, 03920xxx, 04120xxx	91693700	91041020-00	-----	-----

* Contact Aqua-Flo Customer Service Dept. © 909/591-7453

^~ If in question, refer to motor label

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ASSEMBLY INSTRUCTIONS

(Including Impeller & Seal Replacement)

⚠ WARNING ELECTRIC SHOCK: ALWAYS DISCONNECT THE ELECTRICAL POWER FROM THE PUMP MOTOR BEFORE PERFORMING ANY WORK ON THE PUMP UNIT.

To Disassemble Pump

CAUTION: DRAIN THE WATER FROM THE PLUMBING LINES BEFORE DISCONNECTING THE PUMP. ALWAYS PROTECT THE MOTOR FROM POSSIBLE WATER DAMAGE.

Removing the Suction Cover

1. Remove the cover by removing the screws securing the cover to the volute (casing). These screws are located at the perimeter of the cover.
2. Note the orientation of the loose wear ring on the impeller hub before disassembling.

Removing the Impeller

1. Hold the motor shaft from rotating as follows: At the rear of the motor, insert a wide blade screwdriver in the shaft end slot, or use a needle nose 'vise grip' or pliers to hold the shaft between the motor face and impeller sleeve opening. **Caution: Do not grip impeller sleeve.**
2. Turn the impeller counter clockwise until it is completely free from the motor shaft thread.

Removing the Volute (Casing) from the Motor

1. Unscrew the four (4) bolts located at the rear of the motor. These bolts extend through the entire length of the motor into the 4 legs of the volute.
2. When the 4 legs of the volute are completely disengaged from all the bolts, slide the volute off of the motor shaft.

Inspecting the Seal

1. Carefully examine the surfaces of the *carbon disk* (black rigid part of seal rotating assembly, mounted on impeller) and the white *ceramic ring* (at seal stationary assembly on volute) for edge chipping, surface scratches, or uneven wear. The surfaces should be smooth and free from damage.
2. The rest of the seal assembly should be free from cracks and should fit snugly with their respective mating parts.
3. Use alcohol wipes or isopropyl alcohol with clean 'lint free' soft cloth to clean the carbon disk and the ceramic ring surface if reusing the same assemblies.

NOTE: IT IS ADVISABLE TO REPLACE THE COMPLETE SEAL ASSEMBLY (BOTH THE CERAMIC AND CARBON SIDES) EVERY TIME THE PUMP IS DISASSEMBLED.

Removing the Seal Assemblies

1. Remove the seal rotating assembly from the impeller by carefully sliding it off of the impeller sleeve.
2. Remove the ceramic ring and rubber boot by knocking it out and/or prying it loose through the rear opening of the volute. Be sure not to scratch or damage the ceramic surface if you are reusing this part. Caution must be used so as not to damage the volute wall.

Installing the New Seal Assemblies

1. Seal Rotating Assembly: Carbon Disk, Spring, Steel Collar, Rubber Ring
 - a. Before installing the seal rotating assembly, apply water to the shaft sleeve.
 - b. Grasp the assembly with the carbon disk facing outward. Insert the impeller sleeve through the steel collar side. Using a twisting motion, push until the steel collar touches the base of the sleeve.
2. Seal Stationary Assembly: Ceramic Ring, Rubber Boot
 - a. Before installing the stationary assembly, apply water to the rubber boot's ribbings.
 - b. Being careful not to damage the ceramic ring surface, press the seal assembly squarely into the seal cavity of the volute.

Reinstalling the Volute (Casing) to the Motor

1. Align the four bolts located at the rear of the motor, with the 4 volute legs. These bolts extend through the entire length of the motor, into the legs of the volute.
 2. Pre-tighten the four bolts. Make sure that the motor shaft is accurately located in the center of (not touching) the ceramic ring.
 3. When the motor shaft is properly located, tighten the four bolts to secure the volute in place.
- (continued)

Reinstalling the Impeller

1. Hold the motor shaft from rotating as follows: At the rear of the motor, insert a wide blade screwdriver in the shaft end slot, or use a needle nose 'vise grip' or pliers to hold the shaft between the motor face and impeller sleeve opening.
2. Thread the impeller clockwise over the motor shaft. Hand tighten only. Make sure the seal carbon disk is in contact

- with ceramic ring. **Caution: Do not grip impeller sleeve.**
 3. Reinstall the wear ring over the impeller hub in correct orientation.

Reinstalling the Suction Cover

1. Inspect the o-ring for damage. Replace if necessary.
2. Properly install the o-ring on the cover before mounting the cover to the volute.
3. Cover can be mounted to the volute in one orientation only. An 'aligning' feature is built-in with each part, to ensure proper mounting. When properly aligned, the cover should slide in easily.
4. Secure the cover to the volute with screws. Tighten all screws alternately (crisscrossing the cover) to achieve proper o-ring compression and cover seating.
5. Rotate the impeller by hand to make sure that it is rotating freely, without any interference.

Reconnecting the Pump Unit

1. Clean the seals, gaskets, or o-rings of the plumbing connectors. Replace if cracked, worn, or damaged.
2. Reconnect the plumbing lines to the pump. Hand tighten only.
3. Be sure that the pump unit is secured properly to the platform or base, if applicable. Tighten the bolts if necessary.
4. Reconnect the power supply. Be sure that all wires are properly and securely connected.

CAUTION: BEFORE TURNING THE POWER ON, BE SURE THAT: 1) THERE IS AN ADEQUATE AMOUNT OF WATER IN THE SYSTEM; 2) ALL VALVES ARE OPEN TO ALLOW WATER CIRCULATION; 3) ALL CONNECTORS AND FITTINGS ARE PROPERLY ALIGNED AND SECURE.

FLO-MASTER® "TMCP" SERIES PUMPS LIMITED WARRANTY

Aqua-Flo, Inc.

WARRANTS TO:

the original retail purchaser only, that the

products they manufacture are free from defects in material and/or workmanship for a period of five years (pump seals warranty for 30 days) from date of purchase. If within the first two years, any such products shall prove defective, it shall be repaired or replaced at AQUA-FLO'S option as follows:

The original retail purchaser shall first contact the installing dealer, as soon as possible after discovery of the defect, but in no event later than the expiration date of this warranty. Or upon notification,

AQUA-FLO, INC.

Customer Service Department
 P.O. Box 2526, Chino, CA 91708

will advise the consumer of the address to which the defective item may be shipped, together with the model number, serial number and date of purchase of item claimed to be defective. The consumer must pay for all shipping charges.

If within the years three through five any such products shall prove defective, the original retail purchaser shall be entitled to purchase replacement equipment or components at the following percentage off the current published list price:

Third year	60%
Fourth year	40%
Fifth year	20%

EXCLUSIONS

1. This warranty shall not apply to any failures resulting from negligence, abuse, misuse, misapplication, improper installation, alteration or modification, chemical corrosion, or improper maintenance.

2. Any items manufactured by other companies and used by AQUA-FLO in its products may carry warranties by the original manufacturers.

3. AQUA-FLO is not liable for incidental or consequential damages, loss of time, inconvenience, incidental expenses, labor or material charges in connection with removal or replacement of the equipment.

AQUA-FLO is not responsible for any implied warranties or representations by others and the foregoing warranty is exclusive and in lieu of all warranties provided herein.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.



PUMPS FOR THE LEISURE WATER INDUSTRY
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